

REMARKS

Favorable reconsideration of the present application is respectfully requested.

The specification has been amended to provide reference characters corresponding to 10a and 13a in the Figures. The drawing objection is therefore believed to be moot.

Claim 1 has been amended to clarify that the brake torque sensor is provided on the fixed-side raceway member at a location such that the brake torque sensor is fixedly mounted with respect to the fixed-side raceway member. Basis for this is found in Figure 1 wherein the strain gauge 2a is mounted to the caliper mount arm 10 integral with the fixed-side raceway member 3. Claim 2 has been amended to recite that the caliper mount is immovable with the fixed-side raceway member. Basis for this is also found in the integral formation of the caliper mount 10 with the fixed-side raceway member 3, as shown in Figure 1.

According to a feature of the claimed invention, a sensor equipped hub unit is arranged to detect brake torque values with high accuracy. A conventional brake torque sensor is illustrated in U.S. patent publication 2003/0083797 (Yokoyama et al.). An unsprung-mass fixing portion is schematically shown in Figure 1 of Yokoyama et al. as element 74. A wheel 71 is rotationally supported by the unsprung-mass fixing portion 74 via a wheel hub 76 and (unnumbered) ball bearings. Additionally, a brake caliper 11 cooperating with a brake disk rotor 75 to brake the wheel is mounted in a *floating* manner to the unsprung-mass fixing portion 74 by a slide pin bolt 78 so as to be slidable in the axial direction (paragraph [0028]). A braking force sensor 34 is mounted to the brake actuator 7 fixed to the floating caliper 11. The accuracy of the brake torque measurement by the sensor 34 is therefore affected by the play inherent in the floating mount of the caliper.

In contrast, the present invention provides that the brake torque sensor is provided on the fixed-side raceway member of the hub unit at a location such that the brake torque sensor is fixedly mounted with respect to the fixed-side raceway member. For example, the strain

gauge 2a is mounted directly to the caliper mount 10 in the non-limiting embodiment of Figure 1 or the caliper mount 13 in the non-limiting embodiment of Figure 2. Alternatively, it is mounted to the flange 15 integral with the fixed-side raceway member 3 in the non-limiting embodiment of Figure 3. In each case, the sensor is fixedly mounted with respect to the fixed-side raceway member, and so inaccuracies due to movement or "play" in a relatively movable part do not affect the accuracy of the brake torque measurement.

Claims 1-3 were rejected under 35 U.S.C. § 102 as being anticipated by Yokoyama et al. However, it is respectfully submitted that the amended claims define over this reference. As has already been explained, the brake torque sensor 34 of Yokoyama et al. is mounted to a part (7) which is floating or slidable with respect to the "fixed-side raceway member" (74). As such, it is not provided on the fixed-side raceway member "at a location such that the brake torque sensor is fixably mounted with respect to the fixed-side raceway member," as is now recited in the claims.

Concerning the rejection of dependent Claims 4-9 in paragraphs 7-10 of the Office Action, it is noted that the secondary references to Kozyra et al., Nomura, and Salou et al. were cited to teach features of the dependent claims and do not suggest mounting a brake torque sensor on the fixed-side raceway member. It is therefore respectfully submitted that the claims define over any combination of the cited prior art.

Respectfully submitted,

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413-2220
(OSMMN 06/04)

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Gregory J. Maier
Registration No. 25,599
Robert T. Pous
Registration No. 29,099
Attorneys of Record